Sandia National Laboratories

Neutron Scatter Camera for Radiation Detection

Summary

Sandia's neutron scatter camera is an innovative design which combines the benefits of gamma ray imaging with fast neutron imaging. The camera detects special nuclear material (SNM) and rejects backgrounds from naturally occurring radiation sources that can produce false alarms. Additionally, the camera can detect and localize neutrons at greater distances and through shielding since fast neutrons are more penetrating than gamma rays. One of the key advantages is higher signal to background over non imaging detectors.

Sandia's neutron camera design is sensitive, has good angular resolution, portable, and non hazardous. The design is scalable for shorter dwell times and longer stand-off detection.

BENEFITS

- Compact size, portable
- Can filter out gamma background radiation "noise"
- Combines gamma ray and neutron detection in one instrument
- Good angular resolution- ~5 degrees achievable
- Scalable design to tailor sensitivity to user needs
- Can penetrate heavily shielded sources

APPLICATIONS

- Treaty verification & monitoring
- Nuclear safeguards & nonproliferation
- Homeland security

SD#

- 10674

U.S. PATENTS ISSUED:

- 7,741,613

INTELLECTUAL PROPERTY & LICENSING CONTACT

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Licensing & Partnering Status:

Various license and partnering options are available. Please contact the Intellectual Property department to discuss.

Technology Readiness Level:

Sandia estimates the TRL at approximately 6.3. First generation and advanced prototypes have been successfully deployed and tested.

National Nuclear Security Administration

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